The club house is, of course, yet in its infancy but is self-supporting and the nurses feel a just pride in it and hope that it will make a distinct position for itself in the community and that it will not only be of help to the local nurses but will be of benefit to others.

It is planned to have soon a room to be used for transient nurses, whether they come to Cleveland for only a few hours, or for a few days or weeks. All are invited to visit the Isabel Hampton Robb Memorial Club for Nurses.

UNCINARIASIS OR HOOKWORM DISEASE

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Uncinariasis may be defined as a specific zöoparasitic disease, found chiefly in tropic and sub-tropical sand regions and caused by the *Uncinaria Americana,* commonly called hookworm. This parasite is also called *Necator Americana,* or American murderer, because it has caused so many deaths. Its history dates back to the early Egyptians, but the disease was not understood until about the middle of the nineteenth century, when it was shown to be due to an intestinal parasite, *Agchylostoma duodenale.*

While we have occasionally a few cases coming to this country bringing with them an infection of the Old World hookworm, there is a type of worm distinctive to this country. The negro probably brought with him the infection of the New World type, and while he is open to the infection here and a carrier of the disease, still as a class he has an immunity to the ravages of the parasite not shown by the native. Stiles puts this disease in the same general class with malaria, tuberculosis and gonorrhœa, thus enabling us to see its importance by comparison.

The distribution of the hookworm disease is dependent upon climatic, geographical and sanitary conditions. The combination of warmth and moisture in the presence of oxygen is necessary to its propagation. The farm and mining portions of the United States, south of the Ohio and Potomac rivers, seem to offer the most favorable surroundings for its development. Its spread is limited to areas where there is no system of sewerage, where the people are infected, and where they are addicted to the habit of polluting the soil.

The life cycle of the parasite is interesting: in the body, then out of the body, in an intermediate stage of its development, and finally back

again into the body. The eggs are deposited in the feces and with them pass out of the body. No matter how long the egg is retained in the body it does not develop, on account of a lack of oxygen, so you can see that the infection is limited solely to those parasites that are able to gain entrance into the body by some means. The eggs are microscopical. A portion of feces no larger than the head of a pin might contain two or three dozen. After the feces have been passed, the egg develops in from 24 to 48 hours into a tiny larva. This larva feeds voraciously, developing rapidly in size. Within a week it sheds its skin twice, the second skin remaining as a protecting sheath around the larva. This is known as the encysted stage. It may live from six weeks to six months in this stage, taking no more food, and be capable of infecting man at any time when favorable conditions present themselves.

If it is to continue life and develop into a mature worm, the larva must enter the body of a host, for just as we have seen that it was impossible for the egg to develop into the larva without changing its surroundings, so now we see that the immature larvæ must get back to the intestinal canal in order to grow.

The mode of infection is through the skin, more often the skin of the feet or hands, through contact with infected earth. (It is possible for a patient to re-infect himself through his own feces.) The tiny larva bores its way through the skin, leaving his sheath behind. A primary symptom of infection is ground itch. The larva, entering the tissues, gets into the blood stream and is carried to the lungs, thence to the trachea, up into the œsophagus, and down to the intestine, where it takes up its permanent abode. Once in the intestine the struggle for existence is rewarded. Twice in succession the larva sheds its skin, feeds ravenously, and grows with great rapidity. The adult worm is from one-third to two-thirds of an inch in length, of a grayish white color, and about as thick as a No. 50 cotton thread. It gets its name from the bend at the head, which is turned back on its neck, giving it the appearance of a hook. The rays in the fan-shaped tail of the male also resemble hooks. The mouth is a sucking cup-shaped arrangement by means of which it fastens itself to the intestinal mucosa. On either side of the powerful jaws are lancets which pierce the flesh, making punctures through which blood can escape, and conveying a poisonous secretion from a gland in the worm's head.

The harmful effects produced by the parasite may be summed up as follows: The loss of blood which furnishes the worm with food, and the more serious loss occurring by the oozing from the punctures made by the lancets. The secretion injected by the worm is poisonous, and the

wounds made in the mucous membrane of the bowel form scar tissue, and set up a chronic inflammation, which impairs digestion and prevents proper absorption; also by lowering the resistance of the mucosa it invites other infection. The most pronounced effect though, is the alarming anæmia that follows a severe infection.

Symptoms. Probably the earliest symptom is the characteristic ground itch followed a little later by a group of symptoms varying with the intensity of the infection from simple digestive disturbances to a marked anæmia. Many of these infected people present such a pitiful picture, with their frail wasted bodies and dwarfed mentality, as to be easily recognized as hookworm victims, even by a layman.

In infections occurring before puberty, marked lack of development is shown by the individual. Menstruation is delayed until a girl is eighteen or nineteen years old.

It is possible for a person, providing no reinfection takes place, to outlive an infection of hookworms as the parasites do not live beyond eight to fifteen years, and do not multiply in the intestine.

Economically considered, this is a very important disease. The productiveness of a community is often below 50 per cent., and that of individual families may be even lower. In Porto Rico where coffee picking is the chief industry it was found that six almuds could be picked and carried to the mill by a man in average health. Among the workers infected by hookworm the average ran as low as two or three sacks daily and in some instances a man was so weak that after picking one almud he was unable to carry it to the mill. This shows the heavy toll paid by employee and employer to uncinariasis.

The treatment is very simple, epsom salt and thymol are the drugs most used. The object of treatment is, of course, to remove the cause by expulsion of the parasites. In mild cases this will suffice, but in old chronic cases, and in those where severe damage has been done to the tissues, some regenerative treatment should follow the expulsion of the worms.

On the evening preceding treatment a dose of magnesium sulphate is given to sweep out the bowel and expose the worms to the action of the anthelmintic. The patient remains in bed the next day, or while he is under treatment. At 8 A.M., 2 grains of finely powdered thymol are given, and at 10 A.M., the dose is repeated, watching carefully for any symptoms of its absorption. The symptoms of poisoning by thymol are not unlike those accompanying poisoning by carbolic acid: vertigo, fall of temperature, urine dark, pulse slow, respirations slow and shallow, delirium and collapse. If a group of symptoms calls for stimulation,

the attendant must bear in mind the danger of giving alcohol. Strychnia is the stimulant *par excellence* for these cases, and nursing measures to restore the failing vitality. At 12 M. another dose of magnesium sulphate is given to sweep the poisoned worms out of the system. The soluble sulphate also combines with the thymol, forming an insoluble substance and preventing its absorption.

One treatment may be enough for a mild case and the feces will contain hundreds of worms. More severe cases require further treatment, but the interval between them is arranged by the physician, according to the vitality of the patient and his tolerance of the drug. As the parasites are not multiplying in the intestine, there is nothing to be gained by hasty treatment. Male fern and betanaphthol have been used where thymol is not well tolerated, but care in administering it will make this a safe drug in the majority of cases. Gravy, butter and milk must not be given on days when thymol is to be used. Alcohol and oils, being solvents of thymol must be guarded against during its administration.

As it is desirable for the thymol to reach the intestine as quickly as possible, and as many of the hookworm victims have dilated stomachs, the patient must be kept on his right side for at least one-half hour after the thymol is taken, in order to hasten its escape through the pyloric orifice. This is a good point to remember in the administration of any substance, which is destined for intestinal medication. Magnesium sulphate will often work in 30 to 40 minutes if this simple rule is followed. After treatment the stools are examined microscopically for eggs and when they are no longer discovered, the patient is pronounced free from the parasite. It is well to have the examinations extend over a period of several weeks, as sometimes the sickened worms are not dislodged from the mucous membrane but owing to their half-poisoned condition do not resume their normal functions for some time and ovulation being delayed and no eggs appearing in the stool, the physician and patient might be deceived about the cure.

What shall we say about this terrible disease that is working such wide spread havoc among the people of the south? A disease easily cured and oh so easily prevented! In this, as in other preventable diseases, the individual is powerless and it will continue to afflict mankind until the community itself is aroused to demand wise legislation providing good sewerage, well paved streets, efficient plumbing, and most of all proper hygienic instruction for the masses.

Tolstoy has said, "Most men, no matter how clever, can seldom discern even the simplest and most obvious truth if it be such as to oblige

them to admit the falsity of conclusions they have formed perhaps with much difficulty, which they have taught to others and on which they have built their lives."

The underlying motive which prompts opposition to some of our most constructive legislation doubtless has its explanation in some such subtle reasoning as Tolstoy has pointed out for us. Nevertheless, there is much to rejoice over, in the report of a body of men, such as those who formed the Porto Rican commission. Their report showed us very convincingly that the disease was gaining recognition; and it is not until a condition is recognized and discussed that any means of dealing with it may be planned. That there are men and women who have seen light and are following it is proven by the drafting of such a document as the Owen Bill. Faulty though it may be in some respects we can but trust that it may be the entering wedge for more constructive sanitary legislation in the United States which will have the effect of wiping out our preventable diseases.

For material and statistics I beg to acknowledge indebtedness to Drs. Stiles, Ashford, King, Looss, Igaravidez and to Dr. Mary M. S. Johnstone.

AMUSING CONVALESCENT CHILDREN

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The problem of amusing a convalescent child becomes more difficult when the child must be kept absolutely quiet, as in a case of heart trouble. Being on such a case recently, I formed myself into a "ways and means committee" to find something to amuse the little girl.

A glass bowl of gold fish will amuse a child by the hour. They delight to lie and watch the busy goldfish as they swim back and forth. It adds much to their pleasure to name the fish and invent stories about them, letting the imagination speed as rapidly as the fish themselves. The feeding of them always interests children, too.

Then, one might take the child's favorite doll, use a needle and some material, and let the child use her imagination. While you work, let her guess what you are making. As the garment grows and she has to keep changing her guess the fun increases.